



U.S. TRADE AND DEVELOPMENT AGENCY

EXECUTIVE SUMMARY

Feasibility Study for the Aiquile-Santa Cruz Interconnection Project - Phase 1

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1. Introduction & Summary of Findings

Bolivia's Rail Interconnection Project involves a new rail line linking the eastern Bolivian rail system with the western system. The line would join the eastern system at Santa Cruz and the western system at Aiquile, roughly 130 kilometers southeast of Cochabamba. The proposed line would provide a direct link between the -soybean-producing territories of Bolivia and western Brazil and the Chilean ports of Arica and Antofagasta. It also offers the possibility of a connection to Mejillones where major new port facilities are to be developed.

1.1 Phase I Objective

The main objective of Phase I of the *Feasibility Study for the Aiquile-Santa Cruz Interconnection Project* is to determine the major sources of traffic for the interconnection project and to assess in a **preliminary fashion** the project's financial viability and the level of subsidy that will be required from the Bolivian government. To complete Phase I of the feasibility study, Hagler Bailly has focused on the following four analytic elements:

- **Concept Feasibility** -will the interconnection result with transportation cost savings to producers, exporters, and shippers when compared to alternative, competing transportation systems and routes? In other words, if built, will the interconnection attract significant levels of traffic?
- **Business Structure** -what business structure will most improve the economic and financial feasibility of the interconnection? Is there a way to ensure that the interconnection forms a part of a broader rail system so that revenues can be accrued along a longer route?
- **Revenue and Costs** -what are reasonable expectations with respect to the sources of traffic and revenues for the interconnection? What are the likely construction and operating costs?
- **Preliminary Assessment of Financial Feasibility** -assuming concept feasibility and given alternative revenue and cost scenarios, what are the financial returns of the project? What subsidy levels must the Bolivian government provide to support financial feasibility?

1.2 Summary of Technical Approach

To answer these and other questions the Hagler Bailly relied on the following sources of information and technical approach.

- First, key members of the Hagler Bailly team conducted a two week mission to the study region, which included visits to the following cities: 1) Santa Cruz, Bolivia, 2) Cuiaba, Brazil, 3) Campo Grande, Brazil, 3) Cochabamba, Bolivia, and 4) La Paz, Bolivia. The Bolivian government arranged all meetings in these cities, sponsored a low altitude flight over the proposed interconnection rail alignment, and provided a team of counterparts which

contributed to the data gathering and analytic framework development aspects of this Phase I study.

- Second, the Hagler Bailly team reviewed all key documents relevant to the economic and financial viability of the interconnection project. These included: 1) the Sondotecnica final engineering study (Executive Summary and excerpts of the final reports). Wilbur Smith's national transportation plan developed during 1997 and 1998, the CANAC study. other reports developed by consultants for ENFE, and ENFE's analyses of interconnection construction costs.
- Third, the Hagler Bailly team conducted numerous interviews with relevant stakeholders in the cities visited during the team's in-country mission (listed above) including: 1) producers and exporters of soybeans in Brazil and Bolivia (e.g., representatives of producers' associations in Cuiba, Campo Grande, and Santa Cruz, as well as ADM in Sao Paulo), 2) relevant railroad operators (e.g., Ferrocarril Oriental in Bolivia), 3) potential investors, and 4) government authorities (e.g., ENFE, Bolivia's Viceministry of Transport, members of the governments of the Brazilian state's of Mato Grosso and Mato Grosso do Sul, etc.). These interviews helped to confirm information obtained from reports and site visits, to assess the competitiveness of alternative routes, and to validate the team's traffic and revenue forecasts.

The information and data obtained from this analytical approach were used to develop traffic, revenue, and construction cost scenarios for use in a financial cash flow model for the project. The financial model is used to assess in a preliminary fashion the financial feasibility of Bolivia's rail interconnection project.

1.3 Summary of Findings

The underlying findings of the analyses conducted under Phase I of the feasibility study can be summarized as follows:

- The Aiquile-Santa Cruz rail interconnection will face significant competition from the Hidrovia (a low cost waterway barge transportation alternative) for coveted soybean traffic originating from Mato Gross and Mato Grosso do Sul.
- As a result, the project's feasibility is highly tied to: 1) increases in soybean production and traffic within Bolivia (which requires investments in the roadway network in producing regions), 2) growth in intermodal (container) traffic, 3) reductions in the current rail tariffs being charged by operators of the Bolivian sub-systems, and 4) a business structure that basically unifies the Bolivian system from East to West from the perspective of revenue collection.
- Although Sondotecnica's estimated construction costs for the interconnection appear to be inflated, other investments will be required to ensure that the interconnection "system" provides an efficient means of transport to producers, exporters, and shippers of soybeans

and other commodities (including containers, minerals, and other traffic). For example, a permanent solution to the Red Zone between Cochabamba and Oruro is integral to the development of a cost-effective rail alternative.

The Hagler Bailly team developed three analytic cases to reflect different estimates of revenue and construction costs. The cash-flow analysis of the *standard case* (the team's expected scenario) shows a return on equity (ROE) of about 24 percent. The standard case includes two forms of subsidy:

- a lump-sum contribution to the initial investment of \$75 million by the Bolivian government (basically for the rehabilitation of the Red Zone) and
- complete forgiveness of taxes until the construction debt is retired.

However, this is a provisional finding of potential feasibility since various events must coincide to ensure that private developers/investors participate in the project's development. Specifically,

- if the Bolivian government is willing to provide the subsidies referred to above;
- if construction financing from a multilateral lender is available on the terms described in this study; and
- if the revenue and cost estimates that underlie the standard case are valid,

then private-sector consortia would be willing to undertake the construction of the interconnection, the associated improvements, and operation of the railway system.

There are other critical conditions as well as those related to finance, revenue, and cost. Perhaps the foremost of these relates to the business structure. If the Bolivian government can offer a concession to operate the entire Bolivian railway system, as well as build the interconnection, some significant business uncertainties are eliminated.

Nevertheless, the findings of Phase I are sufficiently positive to warrant a deeper and more detailed investigation of the feasibility of the interconnection. Our preliminary analysis has shown that there are scenarios under which the project may be feasible given the conditions summarized above. However, we recommend that any further study of the feasibility of the interconnection also include a thorough examination of the options for intermodal service prior to, or in the place, of the interconnection (e.g., RoadRailer and other types of

intermodal equipment). This is not to prejudge a decision on the interconnection. But it is important that the decision be made with a full understanding of the potential for intermodal options, both as alternatives to, and as supplements to, the interconnection.